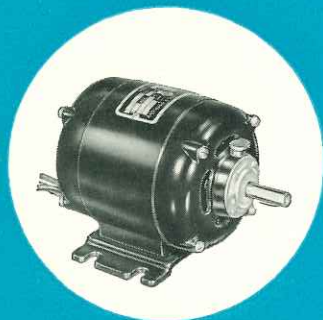


D 26
S-1

D13-1

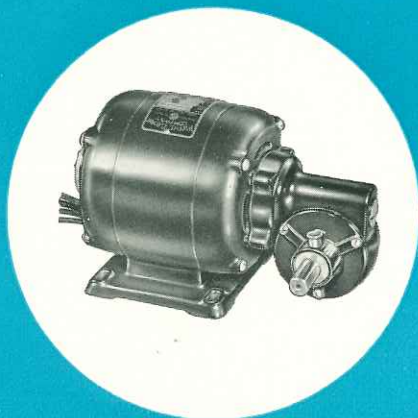
Rel. 5-3-'63



BODINE

fractional / horsepower

MOTORS



Since 1905

BULLETIN "S-2C"



**"The Power Behind
the Leading Products"**

Trouble-free operation, long life and low rejection rates are hidden values inherent in all Bodine motors. These plus values are mainly the result of close tolerance machining. This single factor enables Bodine not only to produce better motors, but to produce them at lower cost to customer in terms of value received.

A motor in your product is your motor in the eyes of a customer. It is the heart of the unit and frequent failure could easily nullify all other competitive advantages.

1/2000 to 1/6 Horsepower

Bodine motors, with a horsepower range of from 1/2000 to 1/6, offer easy adaptability to many applications. Basic model designs appear at right.

**Torque Ratings....
to 350 in. lbs.**

Motors with built-in speed reducers are one compact unit, eliminating cumbersome and complicated speed reducer transmissions such as belts, gears, and chains. Bodine builds spur, helical and worm gear type reducers. Stock motors listed in this catalog have torque ratings up to 219 in. lbs. For complete ratings call your Bodine representative.

3500 Standard Motors

The Bodine line, within its horsepower range, is unusually complete with over 3500 standard motors in all types and sizes. This bulletin lists over 300 stock motors found to be the most popular in the standard line. Stock motors may be purchased in any quantity and are available for immediate delivery. Motors manufactured to order are subject to minimum quantities.

MOTOR RATINGS

hp	1/100 to 1/7
rpm	5000 to 10,000
page	4-5

MOTOR REDUCER RATINGS

torque	0.7 to 28.4 in. lbs.
rpm	833 to 9
page	8-10

300 STOCK MOTORS-IMMEDIATE DELIVERY

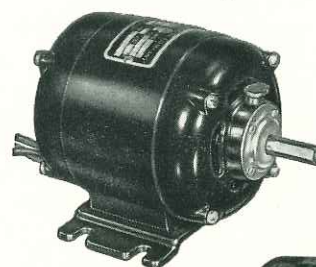
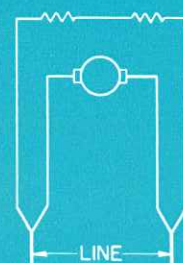
**universal-AC or DC
series wound**

- Variable Speed
- High Starting Torque
- Unidirectional
- Intermittent Duty



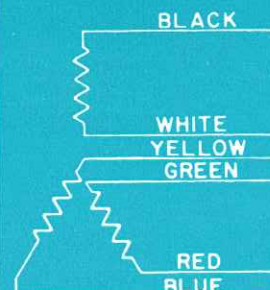
**DC shunt type
shunt wound**

- Constant-Adjustable Speed
- Normal Starting Torque
- Reversible during rotation, under favorable conditions



**3-phase AC
3-phase**

- Constant Speed
- High Starting Torque
- Reversible during rotation

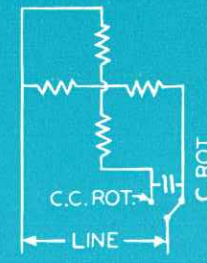


constant speed	synchronous speed
1/20 and 1/6	
1725	
4-5	

FROM BODINE DISTRIBUTORS OR FACTORY!

**single phase AC
capacitor 3-lead**

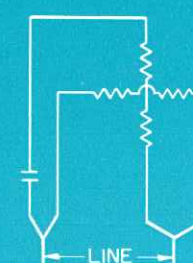
- Constant Speed
- Low Starting Torque
- Reversible during rotation, under favorable conditions



constant speed	synchronous speed
1/500 to 1/1500	1/1500 and 1/1000
1200 and 1675	1800 and 3600
6	6

capacitor 4-lead

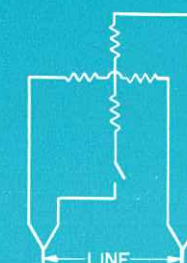
- Constant Speed
- Low Starting Torque
- Reversible during rotation, under favorable conditions



constant speed	synchronous speed
1/50 to 1/15	1/6 to 1/75
1725	1200 to 3600
4	4-5

split phase

- Constant Speed
- Normal Starting Torque
- Reversible from rest



constant speed	synchronous speed
1/70 to 1/15	1/75 to 1/8
1725 to 3450	1800
4	4-5

shaded pole

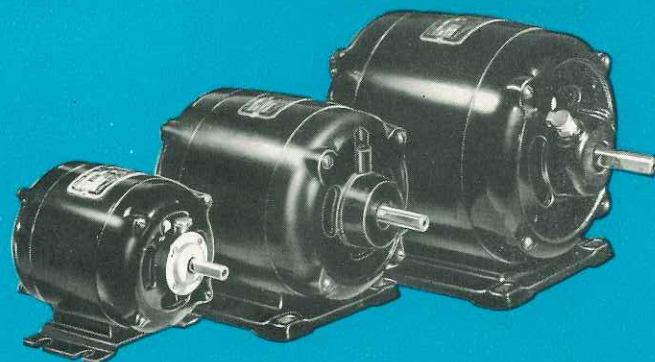
- Constant Speed
- Low Starting Torque
- Non-reversible



constant speed
....
....
....



Type N Motors



Bodine Type N Motors are available in three frame diameters, with several lengths in each diameter. All popular windings except shaded pole are available. Direct current motors are mechanically interchangeable with induction type motors having equivalent ratings and frame sizes.

Construction

The frame construction of Type N motors consists of four basic parts: a center ring, two end shields and a base. The base of the motor can be removed and the motor mounted directly on the base bosses, provided that the screws can be brought up from below the mounting surface. This four piece construction permits accessibility to motor interior and easy maintenance.

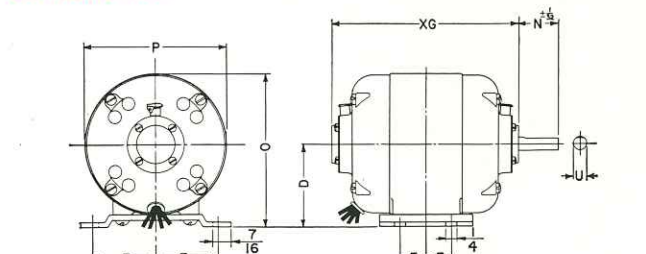
End shields are carefully fitted to the center ring with rabbeted joints and held by four screws. This assures rigidity for positive bearing alignment and an accurate, uniform air gap maintenance—so necessary in obtaining quiet and efficient operation.

Frames 11, 12 and 13

SPEED RPM	HP	TYPE FRAME	WT. LBS.	‡ CAT NO
SPLIT PHASE—115 V.—60 CY.—Totally Enclosed				
1725	1/70	NSI-12	3 3/4	@ B222E
1725	1/60	NSI-13	5	2224E
SPLIT PHASE—115 V.—60 CY.—Self Ventilated				
1725	1/50	NSI-12	3 3/4	2222
1725	1/40	NSI-13	5	2224
3450	1/50	NSI-12	3 3/4	2228
3450	1/40	NSI-13	5	2230
SHUNT WOUND—115 V.—DC—Self Ventilated				
1725	1/50	NSH-12	3 3/4	2150
■ CAPACITOR (4-Lead)—115 V.—60 CY.—Self Ventilated				
1725	1/50	NCI-12	3 3/4	2258
1725	1/40	NCI-13	5	2260
SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Totally Enclosed				
1800	1/150	NSY-12	3 3/4	@ B2246E
SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Self Ventilated				
1800	1/75	NSY-12	3 3/4	2246
■ SYNCHRONOUS CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated				
1800	1/75	NYC-12	3 3/4	2270
■ HYSTERESIS SYNC. CAPACITOR—115 V.—60 CY.—Self Ventilated				
3600	1/50	NCH-13	5 1/2	B7346
SERIES WOUND—115 V.—UNIVERSAL—DC or AC—Self Ventilated—CW Rot.				
5000	1/25	NSE-11	3 1/4	2168**
5000	1/18	NSE-12	3 3/4	2170**
5000	1/16	NSE-13	5	2172**
7500	1/20	NSE-11	3 1/4	@ B2190
7500	1/12	NSE-12	3 3/4	@ B2192
7500	1/10	NSE-13	5	@ B2194
10000	1/15	NSE-11	3 1/4	@ B2206
10000	1/10	NSE-12	3 3/4	@ B2208
10000	1/7	NSE-13	5	@ B2110

See column 1, page 5 for footnotes.

dimensions



FRAME	D to -1/32"	E	F	N	O	P	U	XG †	XG #
11	2	1 15/32	5/8	1 15/16	3 31/32	3 31/32	.3122	4 1/2	4 1/4
12	2	1 19/32	9/8	1 15/16	3 31/32	3 31/32	.3122	4 3/4	4 1/2
13	2	1 19/32	9/8	1 15/16	3 31/32	3 31/32	.3122	5 1/8	4 7/8

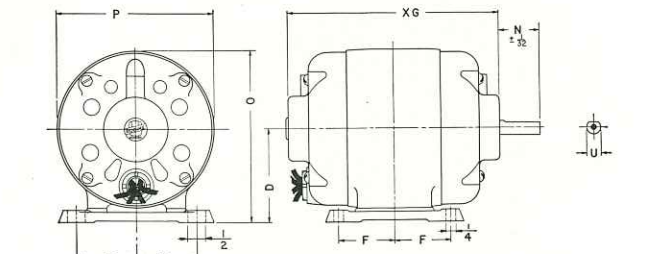
All dimensions apply to either sleeve or ball bearing motors except XG as noted.
† Sleeve bearing motors only.
Ball bearing motors only.

Frames 33 and 34

SPEED RPM	HP	TYPE FRAME	WT. LBS.	‡ CAT NO
SPLIT PHASE—115 V.—60 CY.—Self Ventilated				
1725	1/20	NSI-33	10	4208
1725	1/15	NSI-34	12 1/4	4210
3450	1/20	NSI-33	10	4258
3450	1/15	NSI-34	12 1/4	4260
SHUNT WOUND—115 V.—DC—Self Ventilated				
1725	1/20	NSH-33	10	2408
1725	1/15	NSH-34	12 1/4	2410
■ CAPACITOR (4-Lead)—115 V.—60 CY.—Self Ventilated				
1725	1/20	NCI-33	10	3808
1725	1/15	NCI-34	12 1/4	3810
3-PHASE—220/440 V.—60 CY.—Totally Enclosed—Oil Resistant Leads				
1725	*1/20	NPP-34	12 1/4	@ B7170E
SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Self Ventilated				
1800	1/20	NSY-34	12 1/4	4610
■ SYNCHRONOUS CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated				
1800	1/25	NYC-34	12 1/4	6210
■ HYSTERESIS SYNC. CAPACITOR—115 V.—60 CY.—Self Ventilated				
1200	1/30	NCH-34	13 1/4	B7360
1800	1/20	NCH-34	13 1/4	B7410
3600	1/20	NCH-34	13 1/4	B7460
SERIES WOUND—115 V.—UNIVERSAL—DC or AC—Self Ventilated—CW Rot.				
5000	1/10	NSE-33	10	5258**
5000	1/8	NSE-34	12 1/4	5260**

See column 1, page 5 for footnotes.

dimensions



FRAME	D to -1/32"	E	F	N	O	P	U	XG †	XG #
33	2 5/8	1 11/16	1 1/8	1 1/8	4 3/8	4 13/32	.3745	5 1/2	5 3/8
34	2 5/8	1 11/16	1 1/8	1 1/8	4 3/8	4 13/32	.3745	6	5 7/8

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
† Sleeve bearing motors only.
Ball bearing motors only.

Bearings and Ventilation

Either sleeve or ball bearings are available. Universal motors are equipped with sleeve bearings up to 5000 RPM and with ball bearings at higher speeds. For cool operation, air is drawn in at the pulley end and expelled at the opposite end. A large fan provides a steady flow of air through the motor, across the winding and lamination edges. Forced ventilation makes possible greater output for a given frame size, and lowers operating temperatures to preserve insulation and prolong the life of the lubricant.

Insulation

Only top grade insulating materials, with high dielectric strength and heat resistance, are used. This insulation is responsible, to a large extent, for the long life of Bodine motors even under severe service conditions.

Frames 53, 54 and 55

■ Capacitor is not included with motor. See chart below for capacitor part number.

SPEED RPM	HP	TYPE FRAME	WT. LBS.	‡ CAT NO
3-PHASE—220/440 V.—60 CY.—Totally Enclosed—Oil Resistant Leads				
1725	*1/6	NPP-55	21 3/4	@ B7172E
SHUNT WOUND—115 V.—DC—Self Ventilated				
1725	1/8	NSH-54	17 3/4	2420
SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Self Ventilated				
1800	1/12	NSY-54	17 3/4	4620
1800	1/8	NSY-55	21 3/4	4622
■ HYSTERESIS SYNC. CAPACITOR—115 V.—60 CY.—Self Ventilated				
1200	1/15	NCH-55	21 3/4	B7372

* Three-phase motors deliver more than rated output on 440 volts. Therefore, all application tests should be made with motor connected to 220 volt line.

† Use B prefix for ball bearing motor, i.e., B2222E.

@ Not available with sleeve bearing.

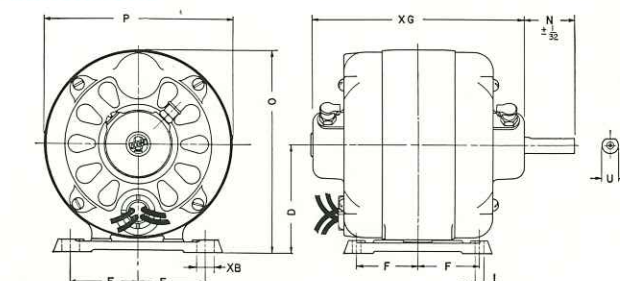
** Not stocked as ball bearing motors. May be procured on special order in minimum lots of 10.

■ CAPACITOR DATA (115 V. Motors)

HP	TYPE FRAME	CAPACITOR PART NO
1/75	NYC-12	N-1897
1/50	NCI-12	N-1897
1/50	NCH-13	N-1897
1/40	NCI-13	N-1897
1/30	NCH-34	N-1896
1/25	NYC-34	N-1898
1/20	NCI-33	N-1898
1/20	NCH-34	N-1898
1/15	NCI-34	N-1898

■ Capacitor is not included with motor. Order Separately.

dimensions



FRAME	D to -1/32"	E	F	N	O	P	U	XB	XG †	XG #
53	3 3/32	2	1 13/16	1 1/2	6 1/8	5 19/32	.4995	1 1/32	6 1/4	5 25/32
54	3 3/32	2	1 13/16	1 1/2	6 1/8	5 19/32	.4995	1 1/32	6 13/16	6 11/32
55	3 3/32	2	2 1/32	1 1/2	6 1/8	5 19/32	.4995	9/16	7 3/8	6 29/32

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
† Sleeve bearing motors only.
Ball bearing motors only.

Type V-10

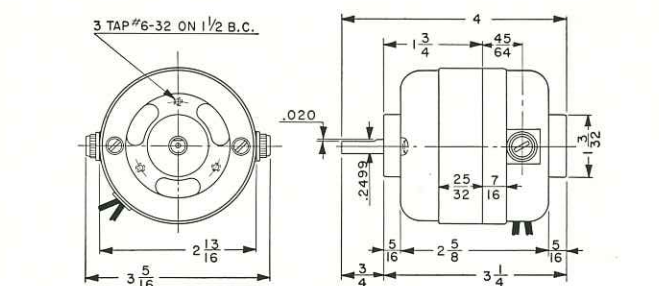


- High Starting Torque
- Rapid Acceleration
- High Output from a Compact Mass

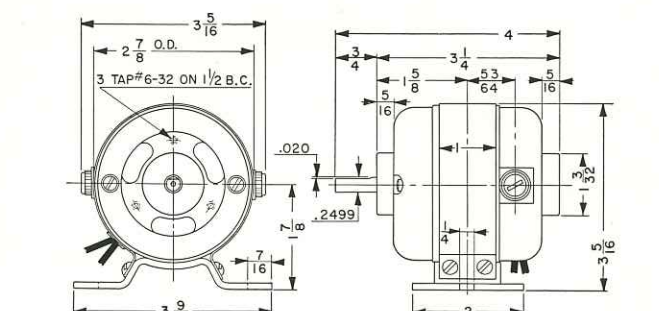
The Bodine Type V-10 motor is supplied with a series winding, variable speed characteristics, and a full load speed of 5000 RPM. It can be operated on either AC or DC, and its compactness offers generous power with light weight and small enclosure. Three tapped holes in the end shield allow end mounting. Optional horizontal base mounting requires a motor frame strap.

SPEED RPM	ROTATION	HP	TYPE FRAME	WT. LBS.	CAT NO
SERIES WOUND—115 V.—UNIVERSAL—AC or DC—Self Ventilated					
5000	CW	1/100	V-10	2	1611
5000	CCW	1/100	V-10	2	1612

dimensions

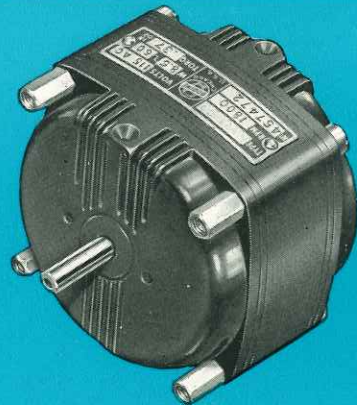


The dimensional diagram above represents a round body motor without the conventional type of base mounting. It will be noted that there are three holes in the end shield tapped for three 6-32 machine screws, which provides a means for end mounting.



Shaft height (17/8") subject to variation of plus or minus 1/32".

Type K-2

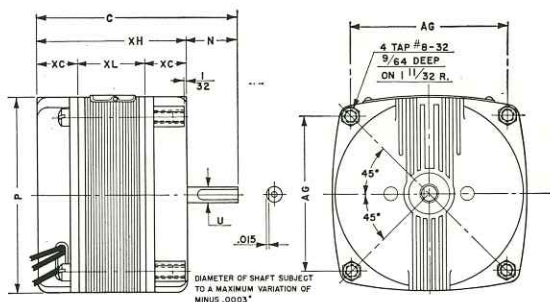


- Instantly Reversible
- Synchronous or Non-synchronous
- Can be Stalled Indefinitely

The Type K-2 frame is one of the smallest distributed wound motors manufactured. It delivers considerably more power than motors of clock type construction, and is especially adapted for use on instruments, control devices, and other equipment requiring relatively low output, and steady, trouble-free service. No "permanent" magnets are employed, and there is no decline in performance with age. Type K-2 motors are totally enclosed, and are furnished equipped with ball bearings. High slip motors lend themselves to dynamic braking, which is accomplished by shunting the capacitor with motor windings energized.

SPEED RPM	HP	TYPE FRAME	WT OZ	CAT NO
*CAPACITOR (3-LEAD)—Normal Slip—115 V.—60 CY.—Totally Enclosed				
1675	1/750	KCI-23	24	B8194E
1675	1/500	KCI-26	36	B8200E
*CAPACITOR (3-LEAD)—High Slip—115 V.—60 CY.—Totally Enclosed				
1200	1/1500	KCI-23	24	B8264E
1200	1/750	KCI-26	36	B8270E
*SYNCHRONOUS CAPACITOR (3-LEAD)—115 V.—60 CY.—Totally Enclosed				
1800	1/1500	KYC-23	24	B8124E
1800	1/1000	KYC-26	36	B8130E
3600	1/1500	KYC-23	24	B8138E
3600	1/1000	KYC-26	36	B8144E

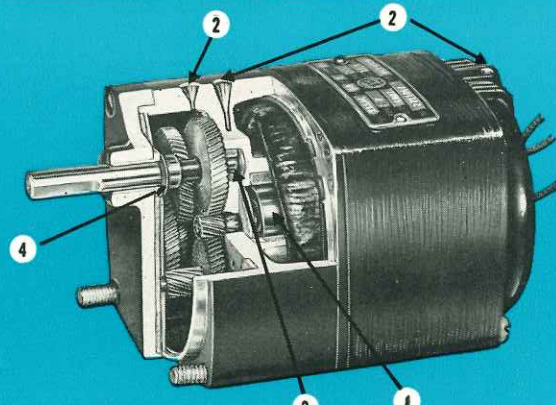
dimensions



FRAME	C	N	P	U	AG	XC	XH	XL
K-23	27/16	5/8	23/8	3/16	12 1/2	1/2	11 1/2	13 1/2
K-26	33/32	5/8	23/8	3/16	12 1/2	1/2	11 1/2	13 1/2

* Suitable capacitor and container of lubricant supplied with each motor.

Type K-2 with Helical Gear Reduction

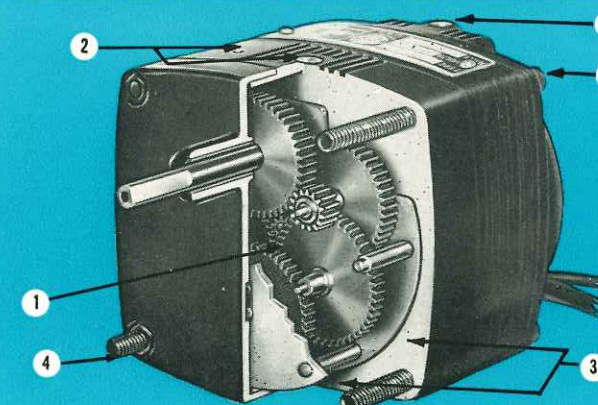


1. Ball Bearing
2. Oil Holes
3. Ball Thrust Bearing
4. Flange Type Thrust Bearing

Designed for continuous duty applications requiring sturdy construction and exceptional reliability. All gearing is of the helical type, accurately hobbled to A.G.M.A. standards. Helical gearing increases load carrying capacity, reduces noise through smoother tooth action and produces more uniform pitch line velocity, as compared to spur gears. Gear train is made up of individual gear and steel pinion assemblies, running and supported on hardened, accurately ground steel studs pressed into the gear housing to exact center distances. A laminated bakelite gear meshes with rotor pinion in the first stage. Gears in the intermediate positions are either bronze or steel. Grease lubricated gearing.

SPEED RPM	TORQUE IN.-OZ.	GEAR RATIO	TYPE FRAME	WT OZ	CAT NO
*CAPACITOR (3-LEAD)—Normal Slip—115 V.—60 CY.—Totally Enclosed					
0.9	120	1800:1	KCI-22RM	32	B8192E-1800M
1.9	100	900:1		32	B8192E-900M
2.8	95	600:1		32	B8192E-600M
5.7	95	300:1		32	B8192E-300M
9.3	93	180:1	KCI-23RM	35	B8194E-180M
14.0	62	120:1		35	B8194E-120M
23.0	37	72:1		35	B8194E-72M
56.0	18	30:1		35	B8194E-30M
93.0	16	18:1	KCI-26RM	48	B8200E-18M
140.0	10	12:1		48	B8200E-12M
280.0	5.7	6:1		48	B8200E-06M
*CAPACITOR (3-LEAD)—High Slip—115 V.—60 CY.—Totally Enclosed					
0.7	120	1800:1	KCI-22RM	32	B8262E-1800M
1.4	100	900:1		32	B8262E-900M
2.1	95	600:1		32	B8262E-600M
4.1	81	300:1		32	B8262E-300M
7.0	65	180:1	KCI-23RM	35	B8264E-180M
10	43	120:1		35	B8264E-120M
40	12	30:1		35	B8264E-30M
67	14	18:1	KCI-26RM	48	B8270E-18M
200	5.2	6:1		48	B8270E-06M
*SYNCHRONOUS CAPACITOR (3-LEAD)—115 V.—60 CY.—Totally Enclosed					
1	120	1800:1	KYC-22RM	32	B8122E-1800M
2	100	900:1		32	B8122E-900M
3	95	600:1		32	B8122E-600M
6	95	300:1	KYC-26RM	35	B8130E-300M
10	65	180:1		35	B8130E-180M
15	43	120:1		35	B8130E-120M
25	26	72:1		35	B8130E-72M

Type K-2 with Spur Gear Reduction



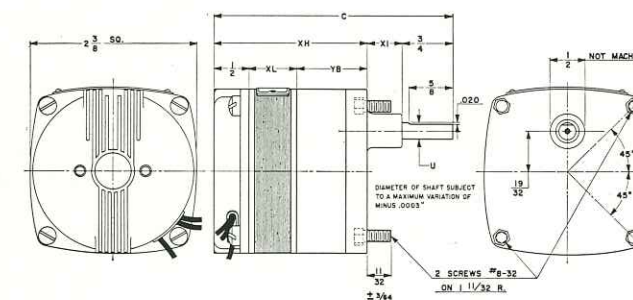
1. Steel Rotor Shaft Pinion
2. Oil Holes
3. Gear Reduction Assembly
4. Mounting Screw

The Type K-2 speed reducer motor employs a small, but rugged, built-in spur gear speed reducer. The motor shaft rotates in ball bearings, while the slow speed drive shaft is supported in a sleeve bearing. All pinions are steel; gears traveling at the higher speeds are made of bakelite for quietness; those at lower speeds of bronze to carry greater torques.

The gears and drive shaft bearing in the gear housing are lubricated by grease which has been selected for operation within the ordinary temperature range (above 40° F.). Two of the four case holding screws are extra long so that they may be passed into or through the mounting surface to hold the motor in place.

SPEED RPM	TORQUE IN.-OZ.	GEAR RATIO	TYPE FRAME	WT OZ	CAT NO
*CAPACITOR (3-LEAD)—Normal Slip—115 V.—60 CY.—Totally Enclosed					
.9	110.0	1800:1	KCI-22RC	32	B8192E-1800C
1.4	105.0	1200:1		32	B8192E-1200C
1.9	95.0	900:1		32	B8192E-900C
5.7	75.0	300:1		32	B8192E-300C
9.3	70.0	180:1		32	B8192E-180C
14	46.0	120:1		32	B8192E-120C
23	26.0	72:1		32	B8192E-72C
56	14.0	30:1	KCI-23RB	32	B8194E-30B
93	8.6	18:1		32	B8194E-18B
140	5.7	12:1		32	B8194E-12B
280	2.8	6:1		32	B8194E-06B
*SYNCHRONOUS CAPACITOR (3-LEAD)—115 V.—60 CY.—Totally Enclosed					
1	110	1800:1	KYC-22RC	32	B8122E-1800C
1.5	105	1200:1		32	B8122E-1200C
2	95	900:1		32	B8122E-900C
3	85	600:1		32	B8122E-600C
6	54	300:1		32	B8122E-300C
10	32	180:1		32	B8122E-180C
15	21	120:1		32	B8122E-120C
25	12	72:1	KYC-23RB	32	B8124E-72C
60	6.6	30:1		32	B8124E-30B
100	4.0	18:1		32	B8124E-18B
150	2.6	12:1		32	B8124E-12B
200	2.0	9:1		32	B8124E-09B
300	1.3	6:1		32	B8124E-06B
*CAPACITOR (3-LEAD)—High Slip—115 V.—60 CY.—Totally Enclosed					
.7	110.0	1800:1	KCI-22RC	32	B8262E-1800C
1.1	105.0	1200:1		32	B8262E-1200C
1.4	95.0	900:1		32	B8262E-900C
2.1	85.0	600:1		32	B8262E-600C
4.1	75.0	300:1		32	B8262E-300C
7	49.0	180:1		32	B8262E-180C
10	32.0	120:1		32	B8262E-120C
17	18.0	72:1		32	B8262E-72C
40	10.0	30:1	KCI-23RB	32	B8264E-30B
67	6.0	18:1		32	B8264E-18B
100	4.0	12:1		32	B8264E-12B
200	2.0	6:1		32	B8264E-06B

dimensions



FRAME	C	XI	U	XH	XL	YB
K-22RM	3 5/8	1/4	.250	2 5/8	1 1/4	1 1/4
K-23RM	3 3/4	1/4	.250	2 3/4	1 1/4	1 1/4
K-26RM	4 1/2	1/4	.250	3 1/2	1 1/2	1 1/4

Diameter of Shaft subject to a maximum variation of minus .0003 inch.

* Suitable capacitor and container of lubricant supplied with each motor.



WORM GEAR SPEED REDUCER MOTORS

Bodine worm gear, speed reducer, *stock* motors have torque ratings up to 219 in. lbs. and speeds down to 1.5 rpm. Built-in speed reducers eliminate the need for cumbersome belts, gears and chains.

Larger units are illustrated and described on pages 10 and 11.

single reduction . . . group 1—6.5 in. lbs.

This Bodine motor is designed for transmitting low torques over a wide range of speeds. The worm is of long wearing nitralloy steel (except for low-powered V-10R and NSP-11R); the gear of laminated bakelite, giving quietness and durability. Gearing is grease lubricated. Ball bearings are grease lubricated with integral seals for protection. Sleeve bearings are of bronze composition with wool yarn or wick lubrication.

double reduction . . . group 1—8 in. lbs.

The motor shaft may be equipped with ball or sleeve bearings. All primary gears of double reduction motors are of laminated bakelite. Secondary gears are bronze for ratios of 180:1 or more; laminated bakelite for ratios less than 180:1. All reducer bearings are bored simultaneously to assure accurate bearing alignment.

single reduction . . . group 3—21 in. lbs.

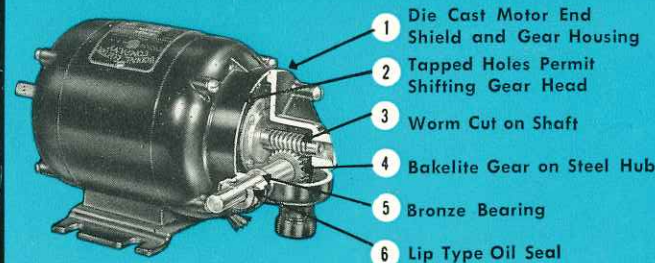
A single reduction, right angle worm gear reducer designed for transmitting moderate torques. Separable hardened and ground steel worm, driven by keyway on end. Laminated bakelite gear on steel hub gives maximum wear and quietness. Grease lubrication is provided for gears.

■ CAPACITOR DATA (115 V. Motors)

HP	TYPE FRAME	CAPACITOR PART NO
1/150	NYC-12R	N-1896
1/150	NCI-12RG	N-1896
1/75	NYC-12RG	N-1897
1/70	NCI-12R	N-1897
1/70	NCI-12RG	N-1897
1/50	NCI-12RG	N-1897
1/20	NCI-33R	N-1898
1/15	NCI-34RH	N-1898

■ Capacitor not included with motor. Order Separately.

Worm Gear . . . to 6.5 in. lbs.



single reduction—group 1

SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
● SERIES WOUND—115 V.—UNIVERSAL—DC or AC—Self Ventilated—CCW Rot.						
208	*25.6	24:1	1/100	V-10R	3	1610-24
500	*12.8	10:1				1610-10
208	2.1	24:1	1/80	NSE-11R	4-1/4	B2080-24
278	1.6	18:1				B2080-18
417	1.2	12:1				B2080-12
500	1.1	10:1				B2080-10
833	0.7	6:1				B2080-06

SPLIT PHASE—115 V.—60 CY.—Totally Enclosed						
58	3.5	30:1	1/70	NSI-12R	5	B2222E-30
72	6.5	24:1				B2222E-24
96	5.4	18:1				B2222E-18
144	4.0	12:1				B2222E-12
173	3.5	10:1				B2222E-10
288	2.2	6:1				B2222E-06

SHUNT WOUND—115 V.—DC—Totally Enclosed						
96.0	5.4	18:1	1/70	NSH-12R	5	B2150E-18

SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Totally Enclosed						
60	3.5	30:1	1/150	NSY-12R	5	B2246E-30
75	2.9	24:1				B2246E-24
100	2.4	18:1				B2246E-18
150	1.8	12:1				B2246E-12
180	1.6	10:1				B2246E-10
300	1.0	6:1				B2246E-06

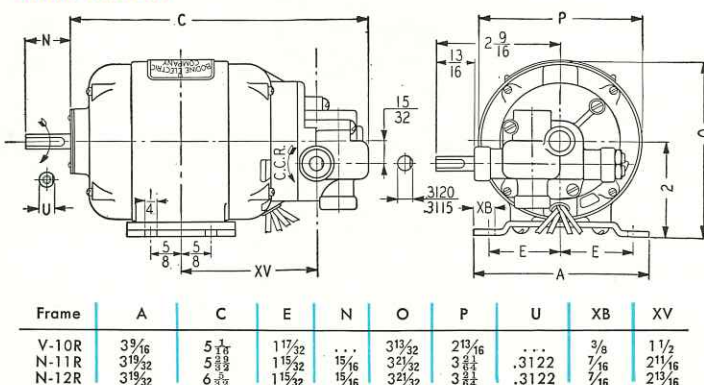
■ SYNCHRONOUS CAPACITOR (4-LEAD)—115 V.—60 CY.—Totally Enclosed						
60	3.5	30:1	1/150	NYC-12R	5	B2270E-30
100	2.4	18:1				B2270E-18
300	1.0	6:1				B2270E-06

■ CAPACITOR (4-LEAD)—115 V.—60 CY.—Totally Enclosed						
96	5.4	18:1	1/70	NCI-12R	5	B2258E-18
144	4.0	12:1				B2258E-12
288	2.2	6:1				B2258E-06

SHADED POLE—115 V.—60 CY.—Self Ventilated—CCW Rot.						
53	4.0	30:1	1/150	NSP-11R	5	2232-30
64	3.3	25:1				2232-25
89	2.7	18:1				2232-18
133	2.0	12:1				2232-12
160	1.8	10:1				2232-10
267	1.1	6:1				2232-06

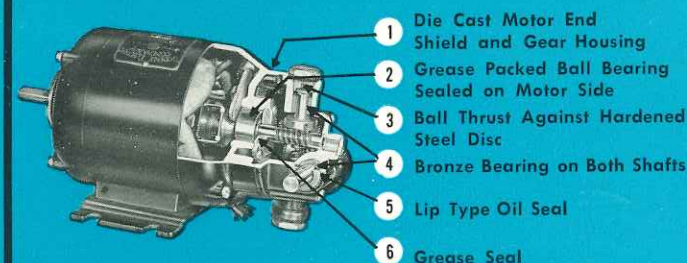
- * Ratings in in. oz.
- Capacitor not included with motor. See data chart for part number.
- Speeds will vary from listed ratings dependent on actual torque loading.

dimensions



Frame	A	C	E	N	O	P	U	XB	XV
V-10R	3 11/16	5 1/8	1 1/2	1 1/2	3 1/2	2 1/4	3 1/2	3/8	1 1/2
N-11R	3 1/2	5 1/8	1 1/2	1 1/2	3 1/2	2 1/4	3 1/2	3/8	1 1/2
N-12R	3 1/2	6 3/8	1 1/2	1 1/2	3 1/2	2 1/4	3 1/2	3/8	1 1/2

Worm Gear . . . to 8 in. lbs.



double reduction—group 1

SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
● SERIES WOUND—115 V.—UNIVERSAL—AC or DC—Self Ventilated—CW Rot.						
17	*64.0	432:1	1/100	V-10R	3	1610-432
41	*44.8	144:1				1610-144
54	*59.2	100:1				1610-100
9	1.1	768:1	1/80	NSE-11R	4 1/4	B2080-768
21	4.0	324:1				B2080-324
31	3.8	216:1				B2080-216
37	4.5	180:1				B2080-180
81	4.0	72:1				B2080-72
139	2.8	36:1				B2080-36

SPLIT PHASE—115 V.—60 CY.—Totally Enclosed						
1.9	2.1	900:1	1/70	NSI-12R	5	B2222E-900
2.9	3.4	600:1				B2222E-600
4.0	5.7	432:1				B2222E-432
6.0	5.1	288:1				B2222E-288
9.6	7.0	180:1				B2222E-180
17	5.6	100:1				B2222E-100
24	6.7	72:1				B2222E-72
29	8.0	60:1				B2222E-60
48	7.1	36:1				B2222E-36

SHUNT WOUND—115 V.—DC—Totally Enclosed						
4.0	5.7	432:1	1/70	NSH-12R	5	B2150E-432
5.3	6.6	324:1				B2150E-324
9.6	7.0	180:1				B2150E-180
17.0	5.6	100:1				B2150E-100

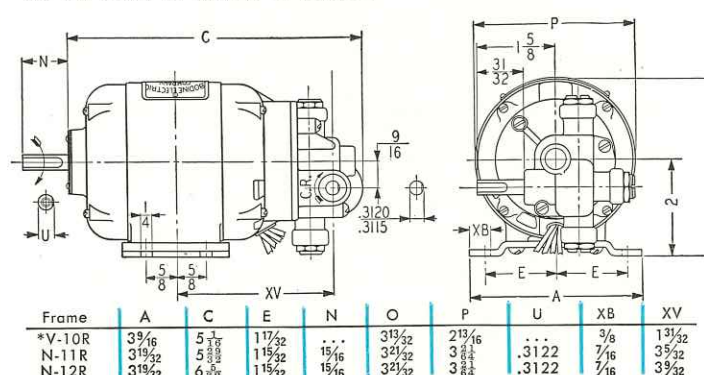
SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Totally Enclosed						
2	2.1	900:1	1/150	NSY-12R	5	B2246E-900
10	7.0	180:1				B2246E-180
25	6.7	72:1				B2246E-72
30	6.1	60:1				B2246E-60
50	4.2	36:1				B2246E-36

■ SYNCHRONOUS CAPACITOR (4-LEAD)—115 V.—60 CY.—Totally Enclosed						
2	2.1	900:1	1/150	NYC-12R	5	B2270E-900
10	7.0	180:1				B2270E-180

■ CAPACITOR (4-LEAD)—115 V.—60 CY.—Totally Enclosed						
2.9	3.4	600:1	1/70	NCI-12R	5	B2258E-600
9.6	7.0	180:1				B2258E-180
24.0	6.7	72:1				B2258E-72
48.0	7.1	36:1				B2258E-36

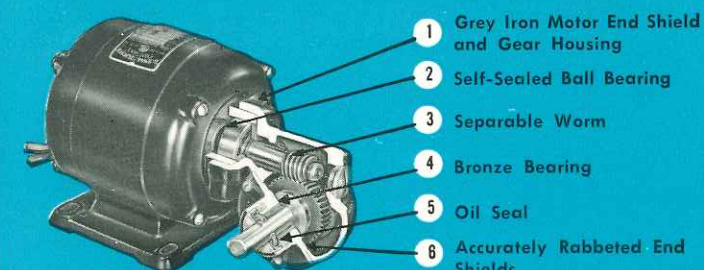
SHADED POLE—115 V.—60 CY.—Self Ventilated—CW Rot.						
1.5	2.2	1120:1	1/150	NSP-11R	5	2232-1120
3.1	5.0	540:1				2232-540
5.1	6.6	324:1				2232-324
6.6	6.9	250:1				2232-250
9.2	7.0	180:1				2232-180
17	5.6	100:1				2232-100
27	6.9	60:1				2232-60
44	4.7	36:1				2232-36

- * Ratings in in. oz.
- See next column on this page for footnotes.



Frame	A	C	E	N	O	P	U	XB	XV
*V-10R	3 11/16	5 1/8	1 1/2	1 1/2	3 1/2	2 1/4	3 1/2	3/8	1 1/2
N-11R	3 1/2	5 1/8	1 1/2	1 1/2	3 1/2	2 1/4	3 1/2	3/8	1 1/2
N-12R	3 1/2	6 3/8	1 1/2	1 1/2	3 1/2	2 1/4	3 1/2	3/8	1 1/2

Worm Gear . . . to 21 in. lbs.



single reduction—group 3

SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
● SERIES WOUND—115 V.—UNIVERSAL—AC or DC—Self Ventilated—CW Rot.						
125	11.2	40:1	1/18	NSE-12RH	6 1/4	B2170-40H
250	7.0	20:1				B2170-20H
500	4.5	10:1				B2170-10H
250	12.5	20:1	1/10	NSE-33R	12	B5258-20
333	10.4	15:1				B5258-15
500	8.2	10:1				B5258-10

SPLIT PHASE—115 V.—60 CY.—Self Ventilated						
29	13.0	60:1	1/50	NSI-12RH	6 1/4	B2222-60H
32	11.8	54:1				B2222-54H
43	11.7	40:1				B2222-40H
57	8.8	30:1				B2222-30H
86	7.3	20:1				B2222-20H
115	6.0	15:1				B2222-15H
173	4.8	10:1				B2222-10H
43	20.0	40:1	1/20	NSI-33R	12	B4208-40
57	21.0	30:1				B4208-30
86	18.3	20:1				B4208-20
115	15.0	15:1				B4208-15
173	11.9	10:1				B4208-10

SHUNT WOUND—115 V.—DC—Self Ventilated						
43	20.0	40:1	1/20	NSH-33R	12	B2408-40
57	21.0	30:1				B2408-30
86	18.3	20:1				B2408-20
173	11.9	10:1				B2408-10

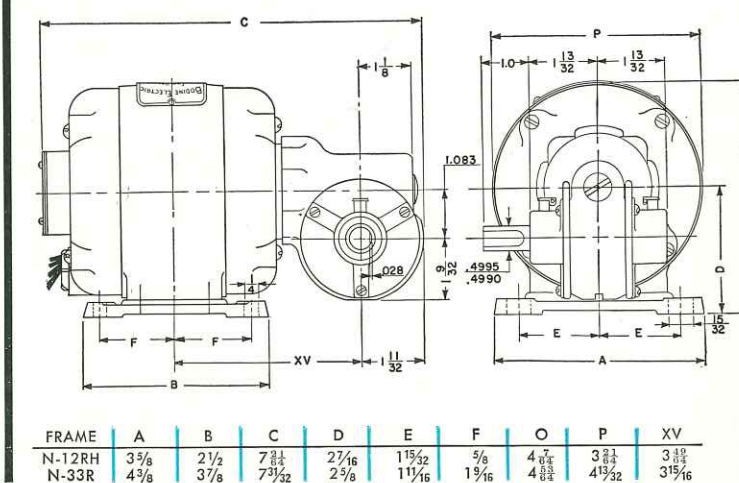
SYNCHRONOUS SPLIT PHASE or SYNCHRONOUS CAPACITOR

May be procured on special order in minimum lots of 10.

■ CAPACITOR (4-Lead)—115 V.—60 CY.—Self Ventilated						
43.0	20	40:1	1/20	NCI-33R	12	B3808-40
57.0	21	30:1				B3808-30
86.0	18.3	20:1				B3808-20
173.0	11.9	10:1				B3808-10

- Capacitor not included with motor. See page 8 for part number.
- Speeds will vary from listed ratings dependent on actual torque loading.

dimensions



FRAME	A	B	C	D	E	F	O	P	XV
N-12RH	3 3/8	2 1/2	7 1/4	2 1/4	1 1/2	3/8	4 1/2	3 1/2	3 1/2
N-33R	4 3/8	3 3/8	7 3/4	2 3/8	1 1/2	1 1/8	4 3/4	4 1/2	3 1/2



Worm Gear...to 52 in. lbs.



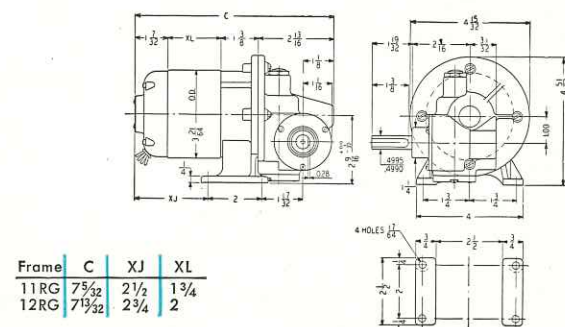
A double-worm-gear speed reducer designed to deliver moderate torques at low speeds. Both primary and secondary worms are of nitralloy steel. The laminated bakelite primary gear assures long wear and quietness; the hard bronze secondary gear carries substantial torque loads. Gearing is grease lubricated.

double reduction—group 2

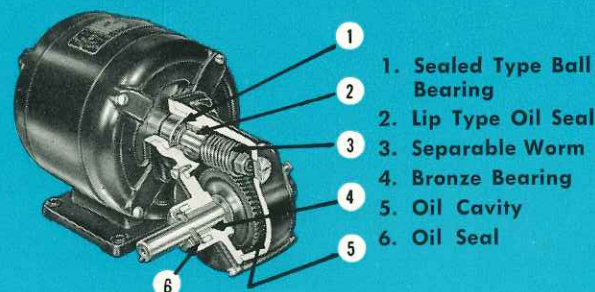
SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
● SERIES WOUND—115 V.—UNIVERSAL—DC or AC—Self Ventilated—CW Rot.						
21	13.0	240:1	1/70	NSI-11RG	6 1/2	B7070-240G
42	24.0	120:1	1/25	NSI-11RG	6 1/2	B2168-120G
83	15.0	60:1				B2168-60G
SPLIT PHASE—115 V.—60 CY.—Self Ventilated						
1.6	40	1080:1	1/150	NSI-12RG	7 3/4	B7094-1080G
2.4	48	720:1	1/70	NSI-12RG	7 3/4	B7050-720G
3.6	52	480:1				B7050-480G
4.8	44	360:1				B7050-360G
7.2	47	240:1	1/50	NSI-12RG	7 3/4	B2222-240G
9.6	41	180:1				B2222-180G
11	37	150:1				B2222-150G
14	32	120:1				B2222-120G
19	26	90:1				B2222-90G
29	20	60:1				B2222-60G
SHUNT WOUND—115 V.—DC—Self Ventilated						
7.2	47	240:1	1/50	NSH-12RG	7 3/4	B2150-240G
14.4	32	120:1				B2150-120G
19.2	26	90:1				B2150-90G
29.0	20	60:1				B2150-60G
SYNCHRONOUS SPLIT PHASE—115 V.—60 CY.—Self Ventilated						
3	50.0	600:1	1/75	NSY-12RG	7 3/4	B2246-600G
30	13.0	60:1				B2246-60G
■ SYNCHRONOUS CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated						
3	50.0	600:1	1/75	NYC-12RG	7 3/4	B2270-600G
30	13.0	60:1				B2270-60G
■ CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated						
1.6	40	1080:1	1/150	NCI-12RG	7 3/4	B7112-1080G
3.6	52	480:1	1/70			B7072-480G
9.5	41	180:1	1/50			B2258-180G
14.0	32	120:1				B2258-120G
19.0	26	90:1				B2258-90G
29.0	20	60:1				B2258-60G

See column 2, page 11 for footnotes.

dimensions



Worm Gear...to 73 in. lbs.



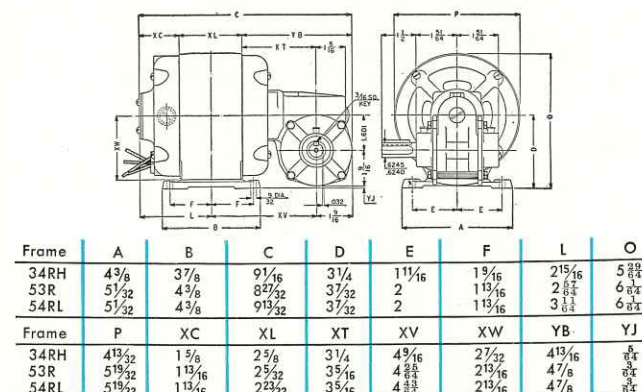
A sturdy, single reduction, right angle worm gear reducer, capable of transmitting substantial torques. It has a separable hardened and ground steel worm. Gears are laminated bakelite or hard gear bronze, depending on torque. When oil is used as gear lubricant, an additional shaft seal prevents seepage to motor.

single reduction—group 5

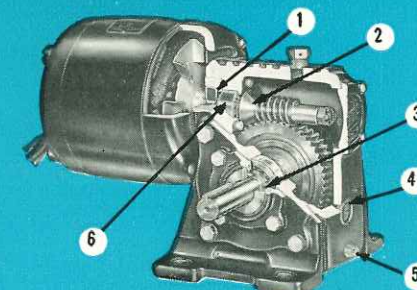
SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
● SERIES WOUND—115 V.—UNIVERSAL—DC or AC—Self Ventilated—CW Rot.						
125	28.4	40:1	1/8	NSI-34RH	15 1/4	B5260-40H
250	19.0	20:1				B5260-20H
500	11.0	10:1				B5260-10H
SPLIT PHASE—115 V.—60 CY.—Self Ventilated						
29	33	60:1	1/15	NSI-34RH	15 1/4	B4210-60H
43	44	40:1				B4210-40H
86	29	20:1				B4210-20H
173	17	10:1				B4210-10H
43	55	40:1	1/12	NSI-53R	18 1/2	B4218-40
86	37	20:1				B4218-20
173	21	10:1				B4218-10
43	73	40:1	1/8	NSI-54RL	21 1/2	B4220-40L
57	66	30:1				B4220-30L
86	54	20:1				B4220-20L
173	32	10:1				B4220-10L
SHUNT WOUND—115 V.—DC—Self Ventilated						
40	44	40:1	1/15	NSH-34RH	15 3/4	B2410-40H
57	37	30:1				B2410-30H
86	29	20:1				B2410-20H
173	17	10:1				B2410-10H
43	73	40:1	1/8	NSH-54RL	21 1/2	B2420-40L
57	66	30:1				B2420-30L
86	54	20:1				B2420-20L
173	32	10:1				B2420-10L
SYNCHRONOUS SPLIT PHASE or SYNCHRONOUS CAPACITOR						
May be procured on special order in minimum lots of 10.						
■ CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated						
29.0	33	60:1	1/15	NCI-34RH	15 1/4	B3810-60H
43.0	44	40:1				B3810-40H
86.0	29	20:1				B3810-20H
173.0	17	10:1				B3810-10H

See column 2, page 11 for footnotes.

dimensions



Worm Gear...to 198 in. lbs.

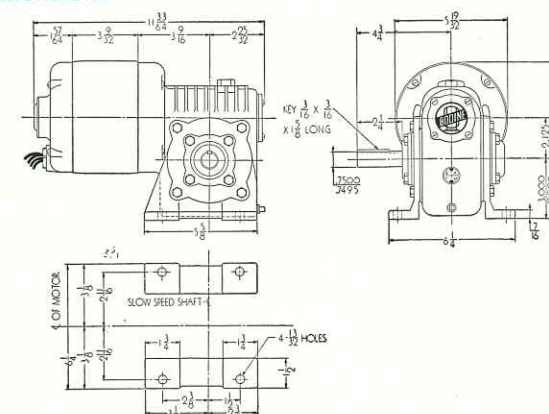


A rugged reducer for driving heavy loads continuously with an ample reserve for overloads. Separable steel worms are hardened and ground to size. The gear bronze is selected for maximum strength. Oil lubrication is used for long life under severe operating conditions.

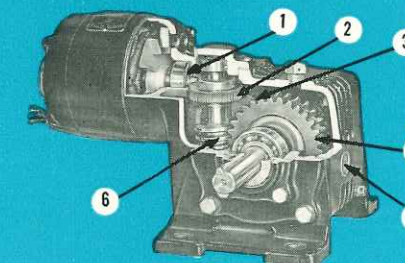
single reduction—group 7

SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
SPLIT PHASE—115 V.—60 CY.—Self Ventilated						
36	198	48:1	1/6	NSI-55RH	36 1/4	B4222-48H
48	160	36:1				B4222-36H
57	131	30:1				B4222-30H
72	118	24:1				B4222-24H
96	86	18:1				B4222-18H
173	50	10:1				B4222-10H
SYNCHRONOUS SPLIT PHASE						
May be procured on special order in minimum lots of 10.						
SYNCHRONOUS CAPACITOR						
May be procured on special order in minimum lots of 10.						
CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated						
May be procured on special order in minimum lots of 10.						

dimensions



Worm Gear...to 219 in. lbs.

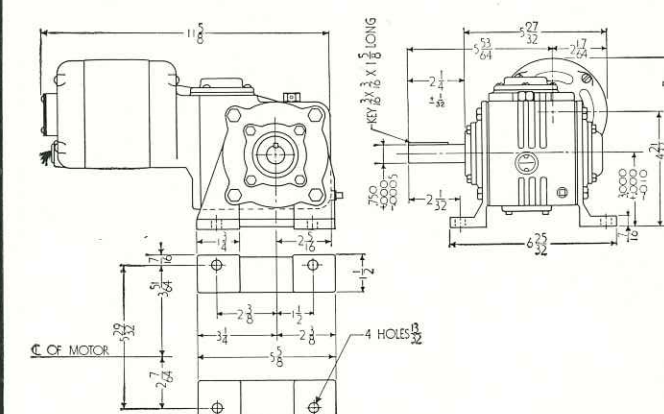


A sturdy, compact, double worm gear reducer for transmitting high torques at low speeds. The bakelite primary gear assures quietness, while long life results from bronze secondary gear, hardened and ground worms, and oil lubrication.

double reduction—group 4

SPEED RPM	TORQUE IN.-LBS.	GEAR RATIO	MOTOR HP	TYPE FRAME	APPROX WT LBS NET	CAT NO
SERIES WOUND—115 V.—UNIVERSAL—DC or AC—Self Ventilated						
May be procured on special order in minimum lots of 10.						
SPLIT PHASE—115 V.—60 CY.—Self Ventilated						
5.7	219	300:1	1/15	NSI-34RJ	27 1/2	B4210-300J
12.0	140	144:1				B4210-144J
24.0	88	72:1				B4210-72J
SYNCHRONOUS SPLIT PHASE						
May be procured on special order in minimum lots of 10.						
SYNCHRONOUS CAPACITOR						
May be procured on special order in minimum lots of 10.						
CAPACITOR (4-LEAD)—115 V.—60 CY.—Self Ventilated						
May be procured on special order in minimum lots of 10.						
● Capacitor not included with motor. See page 8 for part number.						
● Speeds will vary from listed ratings dependent on actual torque loading.						

dimensions



ENGINEERING SERVICE

No matter how well a motor is constructed, improper application can result in poor performance or complete failure. Therefore, it is important that you select the right motor for your product. If you have any doubts as to the motor best suited to your application, fill out Form 1476 (Application Work Sheet), if included with this bulletin, and send it to your Bodine Representative or to our home office if there is no representative in your area. If Form 1476 is not available, supply the information requested in the following "How to Inquire" column. From these facts, it will be possible for us to determine the best motor to fill your needs.



HOW TO INQUIRE

To save unnecessary correspondence, avoid loss of time and keep down experimental costs in requesting data and prices on motors for a new application, supply us with the following information:

1. Name of machine to be driven
2. Field of use
3. Voltage and frequency
4. Direction of rotation or requirements for reversing
5. Load when running
6. Speed desired
7. Starting torque
8. Duration of continuous run
9. Duration of rest period
10. Size and weight limitations
11. Degree of quietness needed
12. Motor mounting position
13. Range of ambient temperatures
14. Estimated requirements

For geared motors specify speed and torque on drive shaft.

DISTRICT REPRESENTATIVES

CALIFORNIA, Los Angeles 13
C. E. "Bud" Mello, 406 S. Main St.
Phone: MAdison 6-9159

CALIFORNIA, San Francisco 24
J. F. Cady, 1485 Bayshore Blvd.
Phone: JUniper 5-4108

MASSACHUSETTS, Bedford
F. L. Olson, 30 Shawshen Ave.
Phone: CRestview 4-7644

MICHIGAN, Grosse Ile (Detroit)
C. D. Miller, P. O. Box 36
Detroit Phone: DUnkirk 6-0900

MINNESOTA, Minneapolis 7
A. C. Jacobson, 730 E. 38th St.
Phone: 827-2442

NEW YORK, Buffalo 26
S. E. Shea, 4548 Main St.
Phone: TF 9-2243

NEW YORK, New York 36
H. C. Mayorga, 55 W. 42nd St., Rm. 1437
Phone: LOnacre 5-2841

NEW YORK, Rochester 18
A. F. Zissler, 3700 East Ave.
Phone: LUdlow 6-6226

NEW YORK, Syracuse 2
H. H. Cardozo, 217 Montgomery St.
Phone: GRanite 1-6061

OHIO, Cleveland 3
W. R. Uffelman, 4500 Euclid Ave., Rm. 216
Phone: HEnderson 1-7715

OREGON, North Bend
L. Sprogis
2347 Broadway St.
Phone: SKYline 9-5454

OREGON, Portland 19
Donal Company, P. O. Box 7013
Phone: CHerry 6-3131

TEXAS, Dallas 6
General Power Equipment Co., 5527 Dyer St.
Phone: EMerson 8-4655

TEXAS, Houston 21
General Power Equipment Co.
4574 Griggs Rd.
Phone: RIVERSide 7-4519

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